

THE GENERAL BOARD

United States Forces, European Theater

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OPERATION OF ORDNANCE ROADSIDE SERVICE STATIONS

MISSION: Prepare Report and Recommendations on the Operation of  
Ordnance Roadside Service Stations.

The General Board was established by General Orders 128, Headquarters European Theater of Operations, US Army, dated 17 June 1945, as amended by General Orders 182, dated 7 August 1945 and General Orders 312 dated 20 November 1945, Headquarters United States Forces European Theater, to prepare a factual analysis of the strategy, tactics, and administration employed by the United States forces in the European Theater.

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# OPERATION OF ORDNANCE ROADSIDE SERVICE STATIONS

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4. Ordnance History (Extract) First French Army.
5. Statement of 1st Lt. Roy L. Hendricks, 3408 Ordnance Medium Automotive Maintenance Company.
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OPERATION OF ORDNANCE ROADSIDE SERVICE STATIONS

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OPERATION OF ORDNANCE ROADSIDE SERVICE STATIONS

CHAPTER 1

HISTORY OF ROADSIDE SERVICE STATIONS IN THE ARMIES

SECTION 1

FOREWORD

1. Extended lines of communication. The rapid advance of the allied armies after the St. Lo breakthrough caused lines of communications to become overextended. As the armies moved to the east and expanded laterally, road nets were uncovered which were quickly exploited to support the armies. Distances between the base installations of the Communications Zone and the army service areas were great and this situation continued until the cessation of hostilities. As the advance cleared Eastern France and Western Germany, excellent systems of highways were revealed, which were superior to the roads experienced in Western Europe.

2. Maintenance. During the expansion of supply routes it became apparent that some provision for vehicular maintenance on the highways was mandatory. With the inauguration of the Red Ball highway express route, transportation began to move at an unprecedented rate and there was a corresponding rise in vehicular mortality. Various names were given the highway maintenance stations which were established during this time, however, all had the same objective, to keep the highways clear and provide Ordnance service. Evacuation of vehicles to appropriate service units was provided in all cases. Replacement of major items was accomplished in some locations and food and shelter was provided for personnel during the time vehicles were undergoing service and repairs.

SECTION 2

SOLUTION IN FIRST US ARMY

3. Truck Hospital.

a. Mission

- (1) To overcome difficulties caused by extended supply lines the First US Army in August 1944 utilized six medium automotive maintenance companies (T/O & E 9-127) to establish 12 truck hospitals. The stations were located along the main axis of communication to insure rapid movement of supplies within the army area and to keep the highways clear of stalled vehicles.<sup>1</sup>

b. Organization and Operation

- (1) Truck hospitals were located approximately 20 miles apart, each platoon operated one station and in addition maintained two road patrols ten miles on either side of the station.<sup>1</sup>

- (2) Patrols were constant and were required to cover the assigned area once every 90 minutes. Trucks, one-quarter ton, were used in daytime and good weather for road patrol, wreckers were employed at other times. These vehicles were distinctively marked with appropriate signs and during hours of darkness displayed illuminated Ordnance insignia in red and yellow.<sup>1</sup>
- (3) patrol personnel were required to know the location of command posts and headquarters of major commands in the vicinity and to maintain close liaison with traffic regulating points.<sup>1</sup>
- (4) Approximately 40% of work accomplished was second echelon, the remainder third echelon with some fourth echelon work which was necessitated because assemblies were not available. Between 20% and 25% of work done was on vehicles operating under orders of Advance Section, Communications Zone and other transient transportation not a part of First US Army.<sup>1</sup>
- (5) Class III resupply and rations for transients were considered a necessary function of the truck hospital.<sup>1</sup>

#### c. Equipment

- (1) The medium automotive maintenance company is equipped to function as a company and designed to operate by platoons. When the two platoons were separated for respective missions it was necessary to obtain additional mess equipment, sanitary equipment, tools and vehicles, including wreckers.<sup>1</sup>

4. Tank Relay Station. In the spring of 1945, the 51 Ordnance Group operated a relay point at Giessen, Germany, to service replacement tanks being sent forward. Messing and shelter were available for approximately 500 men per day.<sup>1</sup>

5. Truck Rehabilitation Center. A survey conducted by the Ordnance Maintenance Division of the Ordnance section, Headquarters, First US Army, revealed nine principal causes of failure in two and one-half ton trucks.<sup>11</sup> To correct these deficiencies and other non-frequent, but no less important ones, a truck rehabilitation center was set up in Verviers, Belgium. Under the supervision of civilian automotive advisers, vehicles were washed and lubricated and an ample supply of hardware was provided to make it possible to replace missing transmission and transfer case hanger bolts which constituted a major problem.<sup>1</sup>

### SECTION 3

#### SOLUTION IN THIRD US ARMY

#### 6. Mobile Ordnance Service.

##### a. Ordnance Road Patrols

- (1) For the purpose of reducing the large number of disabled vehicles along the main supply routes, Third US Army, in September 1944, formed a network of Ordnance road patrols.<sup>2</sup>
- (2) Each patrol had qualified mechanics and necessary hand

tools to make on the spot repairs. A quarter-ton truck was normally employed for road patrol. Wreckers were available on call and located at central points. Evacuation was effected in the usual manner.<sup>2</sup>

- (3) The system was considered successful in saving time and in keeping minor repair jobs away from Ordnance shops.<sup>2</sup>

b. Mobile tire repair teams

- (1) In order to facilitate movement of transportation, mobile Ordnance tire repair teams were organized to patrol the main and auxiliary supply routes in March 1945.<sup>2</sup>
- (2) Each team was equipped with hot patches, tubes, tires and air compressors. To the extent of availability, tires and tubes were mounted on wheels for direct exchange.<sup>2</sup>

7. Roadside Service Stations.

a. Eventually the mobile road patrol and the tire repair teams were dismantled and placed in existing filling stations along the main supply routes performing tire repair, ignition work and light repairs of similar nature.

b. In March 1945, a maintenance service station was set up in St. Wendel, Germany, for the purpose of servicing replacement vehicles brought forward from the rear Army Ordnance depots. Vehicles were refueled and provided with maintenance check. Drivers were also messaged and billeted at this installation.<sup>2</sup>

SECTION 4

SOLUTION IN NINTH US ARMY

8. Service Stations.

a. The service stations of Ninth US Army were established in fixed installations. During the static situation of the winter of 1944-45 service stations were concentrated in the large cities west of the Rhine.<sup>4</sup> Initially, drivers were required to wash and lubricate their own vehicles and Ordnance personnel was present to supervise operations and to make spot-check inspections.<sup>4</sup> After the crossing of the Rhine and the resulting liberation of displaced persons, the procedure was altered to the point where all first echelon maintenance, including tire repair, was performed without the assistance of the driver.<sup>4</sup>

b. The mission of the stations was to furnish Ordnance supervision of first and second echelon maintenance for all the using units. It was emphasized that unit commanders were not relieved of their responsibilities for the upkeep of equipment.<sup>5</sup> As the army extended across the Rhine, additional service stations were established along the autobahns. It was noted that the users consisted chiefly of troops located in the army service area and vehicles of combat elements enroute to depots.<sup>4</sup>

## SECTION 5

### SOLUTION IN SEVENTH US ARMY

#### 9. Emergency Repair Stations.

a. Mission. The supply lines of the Seventh US Army during the operations in France and Germany were always lengthy. Many supplies were delayed due to break-down of trucks along routes where no facilities were available for repair or recovery. In December 1944 the need for an emergency repair station was seen along the main supply route between Luneville and Sarrebourg, France. The aid which this station was able to provide to vehicles and drivers, and the large number of jobs received, indicated the need for additional repair stations. The purpose in setting up emergency service stations was to render immediate aid to truckers at isolated points on the supply route and to enable drivers to correct small deficiencies before development into fourth or fifth echelon repair jobs.<sup>6</sup>

#### b. Organization

- (1) After the initial success and the subsequent enlargement of the system, the 3408 Ordnance Medium Automotive Maintenance Company was designated to operate the roadside service stations along the main supply routes. The number varied from time to time but usually numbered six to nine.<sup>7</sup>
- (2) Nine enlisted men constituted the station personnel, including one non-commissioned officer who was in command. All were qualified mechanics except one, who was a cook, since, by necessity, the station personnel rationed separately.
- (3) Neither non-military labor nor prisoners of war were utilized in any manner.<sup>7</sup>

#### c. Operations

- (1) Stations were established on a basis of one to each main supply route in each Corps area.<sup>7</sup>
- (2) Fixed installations were employed only when such facilities coincided with the selected strategic location. Normally operations were conducted under tentage.
- (3) Emergency repairs only were made by station personnel. The facilities were provided for first echelon maintenance, but the driver supplied the labor.
- (4) Close liaison was maintained with G-4 Transportation when it became necessary to change station locations to insure that a more heavily travelled route would be served.<sup>7</sup>

#### d. Supply

- (1) Initially, all stations received a basic load of fast moving spare parts. Resupply was made by daily truck from the parent organization which collected want lists for future delivery and delivered rations or parts.



- (2) Gasoline and oil were issued only in emergency cases.<sup>7</sup>

## SECTION 6

### SOLUTION IN FIFTEENTH US ARMY

#### 10. Service Stations.

a. In April 1945, Headquarters, Fifteenth US Army established its command post at Bad Neuenahr, Germany. The attachment of numerous small detachments such as Information and Historical, Criminal Investigation Detachments, Counter-Intelligence Detachments and Ordnance Technical Intelligence Teams, plus the augmentation of the headquarters motor pool with captured enemy vehicles, imposed an overload on the organic second echelon shop. To alleviate this condition it was decided to establish a service station.<sup>8</sup>

b. Equipment. An undamaged civilian installation, with pneumatic lift, grease racks and gas pumps was requisitioned. Tools, such as hand mechanics sets and grease guns, were drawn from the headquarters company equipment.<sup>8</sup>

c. Organization. The operation of the station was under the supervision of the Motor Officer, Headquarters Company, Fifteenth US Army. Three enlisted men and eight displaced persons constituted the operating force. The enlisted men were immediate supervisors and did the emergency repairs. The displaced persons dispensed gas and oil, washed and lubricated the vehicles and repaired flat tires.<sup>8</sup>

#### 11. Rehabilitation Teams.

a. The equipment of the Quartermaster truck companies assigned to Fifteenth US Army was in generally poor condition due to previous assignments which had kept the vehicles in almost constant operation. The trucks were deficient in all echelons of maintenance and when brought to Ordnance companies for third echelon repair were found to require complete rehabilitation. In April, 1945, rehabilitation teams were formed in all Ordnance heavy maintenance companies. These teams were able to complete a technical inspection and to repair all vehicles within a Quartermaster truck company in a period of three days.<sup>9</sup>

b. Composition. The Ordnance rehabilitation team was composed of one officer and 15 enlisted men, which in turn was augmented by the unit mechanics and drivers.<sup>9</sup>

c. Operation. The technical inspection and repair was set up on an assembly line basis. A number of the procedures of War Department Form No. 461 was completed at each station. An Ordnance mechanic supervised and assisted the activities of the driver and company mechanics at each station. At the end of the line the vehicle was inspected by Ordnance personnel. Vehicles requiring third and fourth echelon repair were evacuated to the maintenance shop. The capacity of the team was one truck company every three days.<sup>9</sup>

d. Problems. Success of this system depends on complete co-operation and understanding between the Ordnance team and the using unit. Truck company personnel cannot regard the three-day period as a respite from their work, but must require all personnel, including officers, to perform specific tasks in the operation. Advance consideration must be given to the spare parts that will be needed. The operation described above achieved only partial success when parts in short supply, such as wheel bearings, grease retainers and gaskets, were not previously requisitioned.<sup>9</sup>

## SECTION 7

### FIRST FRENCH ARMY

12. Experience of First French Army. Roadside service stations did not exist in the First French Army. Maintenance problems were complicated by lack of adequate first and second echelon maintenance throughout the army. The majority of drivers were North African soldiers, who did not understand proper maintenance of their vehicles. Owing to their temperament and lack of experience, there was a high percentage of accidents in the army, particularly during the winter when the roads were in bad condition.<sup>10</sup> It appears evident that there was a need for some type of emergency Ordnance service along the roads.

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2. After Action Report, Third US Army, Part 18.
3. Statement of Lt. Col. K. R. Daniels, Deputy Ordnance Officer, Third US Army, pertaining to Roadside Service Stations. (Appendix No. 6)
4. Statement of Major Leslie Stewart, re: Roadside Service Stations. (Appendix No. 6)
5. After Action Report, Ninth US Army.
6. After Action Report, Ordnance Section, Seventh US Army.
7. Statement of 1st Lt. Roy L. Hendricks, 3408 Ordnance Medium Automotive Maintenance Company. (Appendix No. 5)
8. Statement of Captain Harvey C. Stone, Motor Officer, Headquarters Company, Fifteenth US Army. (Appendix No. 2)
9. Statement of Captain R. J. Ruddy, Assistant Maintenance Officer, Fifteenth US Army. (Appendix No. 3).
10. Ordnance History (Extract) First French Army. (Appendix No. 4)
11. Rear Cover, "Watch on the Rhine", Army Motors, December 1944. (Appendix No. 8)

## CHAPTER 2

### HISTORY OF ROADSIDE SERVICE STATIONS

#### IN THE COMMUNICATIONS ZONE

##### SECTION 1

##### THE RED BALL ROUTE

13. Experience of the Red Ball Route. During the 87 day existence of the Red Ball highway, which started the latter part of August 1944, preventive maintenance of vehicles was a secondary consideration. The expected collapse of the German army and the end of the war made it appear worthwhile to expend equipment in an effort to keep supplies moving to the rapidly advancing armies. Provisional truck companies were formed from personnel of newly arrived combat divisions and an Engineer general service regiment. Vehicles were operated continuously by a double shift of drivers. Convoys would be away from company shops as long as five days at a time without second echelon maintenance support. Wrecker patrols initially were not provided as all wreckers were used in shops to care for the abnormal maintenance loads. This was an emergency, and time, effort or equipment were not spared on the chance that the gamble could be won. As a result, vehicle abuse mounted. One provisional truck company was furnished three complete issues of vehicles in a period of four months. A survey, during the period 10 September to 15 September 1944, conducted by officers of the Transportation Corps, indicated there were no Ordnance patrols along parts of the Red Ball Route and that there was a very definite and apparent need for some type of emergency service.<sup>6</sup>

##### SECTION 2

##### BLACK DIAMOND ROUTE

14. Experience of the Black Diamond Route. In March 1945, the Black Diamond Route was inaugurated to support the forward advance of the armies of the 6 Army Group. Based on experiences on the Red Ball Route, requests were made for roadside service stations. These were operated by an Ordnance company of the Seventh US Army. They provided emergency service along the routes in the army area. This was so successful that the daily vehicle availability of a Quartermaster truck company increased from the Red Ball average of 34 to an average of 39 out of a total strength of 48. Close cooperation and liaison were maintained between Transportation Corps and Army Ordnance.<sup>1</sup>

##### SECTION 3

##### ADVANCE SECTION, COMMUNICATIONS ZONE

15. Solution in the Advance Section. Initially, the stations of the Advance Section, Communications Zone were established to provide maintenance service for transient vehicles moving through the area and to improve the standards of first and second echelons of maintenance. The stations were initiated in the fall of 1944 and were set up in the general locality of Namur, Liege, and Verdun.

16. Organization. The operating force consisted of a small number of enlisted men who supervised the activities of skilled and unskilled civilians and prisoners of war. Tools were drawn from depot stocks and consisted of air compressors, hand tools, grease guns and tire tools.<sup>2</sup>

17. Second Echelon Teams. To effect an overall improvement in the standard of maintenance throughout the Advance Section in prepara-

tion for the winter offensive, mobile second echelon teams, consisting of one officer and 20 enlisted men, were organized. Equipped with hand tools, the teams were dispatched to work in the motor pools of Advance Section troop units located in areas of greatest vehicle density. The fundamental principle of this idea was to reduce the tremendous work load being received in third and fourth echelon shops by attending to the lighter maintenance work before it developed to serious proportions.<sup>3</sup>

18. Projected Plan for Maintenance on a Red Ball Highway. Should the campaign through Germany over-extend the lines of communications as happened in France, a plan was formulated to provide maintenance to truck companies operating over the proposed Red Ball Highways. All maintenance personnel and tools would be drawn from the truck companies and placed in a service park under Ordnance supervision. Serials of 25 vehicles would be serviced in 40 minutes. Maintenance exchange would be made on vehicles evacuated to a nearby Ordnance company. The wreckers of the truck companies would be used for road patrols. The campaign in Germany terminated so suddenly that the plan was never put into effect.<sup>2</sup> The plan as formulated may be found in Appendix No. 10.<sup>4</sup>

#### SECTION 4

##### CHANOR BASE SECTION

#### 19. Solution in Chanor Base Section.

a. Mission. As the tide of combat moved out of the liberated countries into Germany, Channel (later Chanor) Base Section, Communications Zone, assumed control of the area in which the Advance Section stations were located. The opening of the port of Antwerp and the designation of Brussels as a leave center increased the flow of traffic through Belgium. The service station operation was amplified to accommodate the increase.<sup>5</sup>

b. Organization. The procurement of civilian labor was contracted through a commercial automobile firm which had garages throughout Belgium. Tools already on hand were augmented, where necessary, by government issue. A complete servicing of the vehicle could be obtained in any station with the driver performing only such tasks as cleaning out the cab and the glove compartment and checking for the accident report.<sup>5</sup>

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### Chapter 2

1. Statement of Colonel A. L. Ayer, Chief of Transportation Division, Communications Zone Section, The General Board and former Chief of Motor Transport Service, Communications Zone. (Appendix No. 7)
2. Statement of Major Robert G. Blaylock, former Assistant Ordnance Maintenance Officer of Advance Section, Communications Zone. (Appendix No. 9)
3. Preparation for a Winter Offensive, Operational History, Advance Section, Communications Zone.
4. Plan formulated by Ordnance Division, Advance Section, Communications Zone to provide first and second echelon maintenance for Quartermaster truck companies operating on Red Ball Route. (Appendix No. 10)
5. Joint statement of Major S. E. Beaudreaux, Jr. and Captain Herbert E. Robinson, of Ordnance Depot O-686, Belgium. (Appendix No. 11)
6. Letter, subject: "Lack of Ordnance Maintenance Service", dated 15 September 1944, from Headquarters, Motor Transport Brigade, TC (Prov), Advance Section, Communications Zone to Commanding General, Advance Section, Communications Zone. (Appendix No. 12)

## CHAPTER 3

### COMPOSITION AND EQUIPMENT OF ROADSIDE SERVICE STATIONS

#### SECTION 1

##### PERSONNEL

20. Supervision. The operation of all installations was directly supervised by military personnel. Men to whom this authority is delegated, must possess ability to direct a project with minimum supervision. The mechanics must be experienced trouble shooters as a vast majority of the work will be of an emergency nature.<sup>1</sup> When foreign civilian personnel or prisoners of war are employed, a knowledge of the language is mandatory.<sup>2</sup> When the station is equipped with its own mess equipment, one of the men must be a cook.<sup>1</sup>

21. Use of Civilian Personnel. In liberated countries many stations employed civilian labor for washing and lubricating vehicles. This was the practice in the Communications Zone and in the Ninth and Fifteenth US Armies. In the Chanor Base Section a contract with a Belgian automobile agency made them responsible for the procurement of the station site and the employment of sufficient civilians to operate it under soldier supervision. The civilians were divided into two categories, skilled and unskilled. The skilled were employees of the firm and were men with mechanical ability. The unskilled personnel were common labor and were used for washing, lubrication, repairing flats and policing the station.<sup>3</sup>

22. Displaced Persons. Displaced persons were used in the service stations of Ninth and Fifteenth US Armies for common labor. As a general rule, this personnel was not skilled mechanically and was used only for washing, lubrication and tire repairing.<sup>4</sup> Consideration had to be given to overcoming the loss of efficiency due to non-familiarity with equipment and language.<sup>2</sup> This type personnel also had to be provided with clothing, food and lodging.

23. Prisoners of War. In the stations of the Advance Section, Communications Zone, prisoners of war were used to augment the civilian labor employed in the stations. They were classified as skilled and unskilled, the skilled personnel worked on vehicle engines and did emergency repairs, the unskilled personnel were restricted to first echelon maintenance.<sup>2</sup>

#### SECTION 2

##### HOUSING AND TOOLS

24. Housing. All units except Seventh US Army endeavored to locate their stations in fixed installations. It was felt that there would be an appreciable increase in efficiency and productions if the facilities of a commercial installation could be utilized. In most cases it was possible to obtain stations complete with gasoline pumps, grease racks, or pneumatic lifts, all in operating condition. Along the autobahns, stations were established approximately every 25 miles and were sufficiently large to provide living quarters for the operating personnel. In instances where the stations were located in isolated places it was necessary to make provision for mess and cooking equipment.<sup>1, 5</sup> Seventh US Army service stations were located in fixed installations only if the site was justified by strategic location. Generally the stations operated under canvas, each station being provided with a shop tent and squad tent for living quarters.<sup>1</sup>

25. Tools. As the type of operations was basically the same in all stations, the tool equipment did not vary greatly. Air compressors, mechanics hand tool sets, tire tools and grease guns were on all equipment lists. In the Chanor Base Section, where commercial installations were utilized, stations were equipped initially with tools available from civilian sources and then augmented, as necessary, with equipment from government stocks.<sup>3</sup> Elsewhere it developed that tools and equipment had been pilfered or looted and it was necessary to supply requirements wholly from depot stocks.



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### Chapter 3

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2. Statement of Captain Harvey C. Stone, Motor Officer, Headquarters Company, Fifteenth US Army. (Appendix No. 2)
3. Joint statement of Major S. E. Beaudreaux, Jr. and Captain Herbert E. Robinson of Ordnance Depot O-686, Belgium. (Appendix No. 11)
4. Statement of Major Leslie Stewart, re: Roadside Service Stations. (Appendix No. 6)
5. Statement of Colonel W. B. Moats, Commanding Officer, 51 Ordnance Group. Appendix No. 1.

## CHAPTER 4

### BASIS OF DISTRIBUTION OF ROADSIDE SERVICE STATIONS

#### SECTION 1

##### IN THE ARMIES

26. First US Army. The truck hospitals of First US Army were about 20 miles apart with a wrecker point located midway between the truck hospitals.<sup>1</sup>

27. Third US Army. No information is available on the distribution of Third US Army service stations but the main supply routes of Third US Army in the month of October 1944, during a relatively static condition, totaled 397 miles.

28. Seventh US Army. No attempt was made to establish service stations on a density basis. Strategic locations were selected such as intersections, cross roads or junctions of main supply routes. Generally, the stations were about 25 miles apart.<sup>2</sup>

29. Ninth US Army. Initially service stations were set up in large cities on a basis of strategic location but after the crossing of the Rhine, when the autobahns became the main supply routes, the stations were established 50 miles apart.<sup>3</sup> This partly coincided with the fixed installations available along the autobahn which averaged 25 miles of interval.

#### SECTION 2

##### IN THE COMMUNICATIONS ZONE

30. Chanor Base Section. The stations of the Chanor Base Section were all located in large towns or cities of Belgium, along heavily travelled roads. An examination of the map on the descriptive folder distributed by Chanor Base (Appendix No. 13) reveals the longest distance between two stations to be 54 miles, while the average distance was 31 miles.<sup>4</sup>

## Bibliography

### Chapter 4

1. Statement of Colonel W. B. Moats, Commanding Officer, 51 Ordnance Group. (Appendix No. 1)
2. Statement of 1st Lt. Roy L. Hendricks, 3408 Ordnance Medium Automotive Maintenance Company. (Appendix No. 5)
3. Statement of Major Leslie Stewart, re: Roadside Service Stations. (Appendix No. 6)
4. Standing Operating Procedure for the Establishment of Super Service Station, Headquarters Channel Base Section, 12 April 1945. (Appendix No. 13)

## CHAPTER 5

### ANALYSIS OF JOBS DONE

#### SECTION 1

##### IN THE ARMIES

31. Seventh US Army. The emergency repair stations operated by Seventh US Army found by analysis of jobs done, that a large proportion of the work done was expended upon carburetion, ignition and repair and replacements of lights. For this reason each station maintained a skilled carburetion and ignition mechanic. Brakes and fan belts also required much attention. The repair of flat tires was a frequent job, and although the necessary equipment was provided at the station, the driver was required to do the actual labor.<sup>1</sup>

32. First US Army. At truck hospitals of First US Army 40 percent of the work was second echelon, while third and fourth echelon work comprised the remainder. Fourth echelon was necessary due to a shortage of assemblies. It should be noted that the utilization of a platoon of a medium automotive maintenance company gave First US Army a well equipped typical station, and potentially a very capable one.<sup>2</sup>

#### SECTION 2

##### IN COMMUNICATIONS ZONE

33. Chanor Base and Advance Section. In the type station operated by Chanor Base Section and Advance Section, washing and lubrication of vehicles were the most frequently performed operations. A supply of spare tires and wheels were kept on hand and exchanged for flat tires which were then repaired in slack periods. Failures of carburetion, ignition, fan belts, brakes, and lights were high on the job order frequency. Two stations in the Chanor Base chain were equipped to make unit replacement of engines, transfer cases and transmissions since expeditious replacement of units would reduce the load in the maintenance companies.<sup>3</sup>

#### SECTION 3

##### WORK LIMIT

34. Capacity. In all stations capacity to do work depended on the number and ability of personnel employed. There was little or no overhead personnel as administrative matters were handled by the parent organization. Slack periods were inevitably encountered but these were utilized for the repair of flat tires that had been exchanged.<sup>3</sup> Some comparative production figures follow:

a. Seventh US Army. During the five month period prior to 8 May 1945, 52, 595 minor repairs or recovery jobs were completed by the stations. The highest daily production by one station was 120 jobs while the daily average for nine stations was 500 jobs.<sup>4</sup>

b. Advance Section Communications Zone. The stations operated by Advance Section were considered capable of completely servicing six vehicles every 40 minutes with possible ingressed production dependent on additional personnel and equipment.<sup>5, 6</sup>

c. Chanor Base Section. The stations operated by Chanor Base were considered capable of servicing 90 vehicles per day.<sup>3, 6</sup>

## Bibliography

### Chapter 5

1. Statement of 1st Lt. Roy L. Hendricks, 3408 Ordnance Medium Automotive Maintenance Company. (Appendix No. 5)
2. Statement of Colonel W. B. Moats, Commanding Officer, 51 Ordnance Group. (Appendix No. 1)
3. Joint statement of Major S. E. Beaudreaux, Jr. and Captain Herbert E. Robinson of Ordnance Depot Q-686, Belgium. (Appendix No. 11)
4. After action report, Ordnance Section, Seventh US Army.
5. Statement of Major Robert G. Blaylock, former Assistant Ordnance Maintenance Officer of Advance Section, Communications Zone. (Appendix No. 9)
6. Photographs of Roadside Service Station operations in European Theater of Operations. (Appendix No. 15)

## CHAPTER 6

### OTHER FUNCTIONS

#### SECTION 1

##### CLASS I AND III

35. Class I. The first known attempt to combine messing with servicing of vehicles was a transient mess operated initially by an Ordnance company north of St. Lo, France, at a traffic control point. Between meal hours a Red Cross clubmobile served coffee and doughnuts to the drivers.<sup>1</sup> In the First US Army tank relay station located at Giessen, Germany, facilities were available for the feeding of 500 men per day.<sup>6</sup> The Third US Army installation at St. Wendel, Germany, also provided meals for drivers conveying replacement vehicles forward.<sup>11</sup> In the Ninth US Army area, Red Cross clubmobiles were stationed at some of the installations and coffee and doughnuts were served to drivers.<sup>2</sup> A plan was formulated by the Advance Section, Communications Zone, to be placed in execution should the campaign in Germany develop to the point where a Red-Ball express highway was again needed, whereby drivers would be fed during the interval in which their vehicles were serviced.<sup>3</sup> Throughout the theater there were many transient messes, known popularly as "G. I. Joe Canteens".

36. Class III. The fact that all stations were called upon at some time to furnish gasoline and oil is sufficient evidence that dispensing facilities should be included in any plan of operation. The Seventh US Army service stations issued gasoline and oil only in emergency cases.<sup>4</sup> Initially, the roadside service stations of Chanor Base Section had no restrictions on issues of Class III until a survey indicated that the daily volume was exceeding that of the local Class III dump, thereafter issues were limited to emergencies only.<sup>5</sup> In both instances sufficient gasoline was issued to enable the vehicle to reach the nearest Class III dump.

#### SECTION 2

##### SHELTER

37. Shelter. As in the case of transient messes, similarly there were numerous overnight shelters in the theater. Except in isolated cases, no attempt was made to coordinate their function with those of service stations.<sup>6,11</sup>

#### SECTION 3

##### WRECKER PATROLS AND TRAFFIC REGULATION POINTS

38. Wrecker Patrol. Roadside service stations in Third, Seventh and Ninth US Armies furnished wrecker service at all times.<sup>8, 11, 12</sup> Chanor Base Section did not maintain wrecker service.<sup>5</sup> Wrecker points and patrols were operated in connection with First US Army's truck hospitals. A patrol was required to pass any given point every 90 minutes and to clear a wreck in three hours. At one time during the Ardennes Campaign, 11 ammunition trucks were wrecked on a hill and all were cleared within two hours. During the movement of the 7 Armored Division to the South at the same time, at least 60 wrecks occurred at two points. Movement of the division would have been delayed and passage impeded had clearance not been promptly effected.<sup>6</sup> The service stations were on the main supply routes and as these arteries had first priority on clearance it was deemed advisable to use the service stations as a base of operations for wrecker service with evacuation to the appropriate echelon of maintenance.

39. Traffic Regulation Points. In the operation of First US Army's wrecker patrols every effort was made to coordinate activities with the traffic regulating points and Provost Marshal Military Police with good results. Close association gave the operating personnel information as to the routes which were to be used for troop movements. As a result wreckers and patrols could police roads where the need was greatest. Such information was vital during the Ardennes Campaign.<sup>6</sup> Emergency repair stations in the Seventh US Army area were located on the basis of information received from the transportation section of G-4 as to which routes would become the main supply routes as the action moved forward.<sup>4</sup>

#### SECTION 4

##### REPLACEMENT OF MAJOR ITEMS

40. Issue of Replacement Major Items. In the plan formulated by Advance Section, Communications Zone, for the servicing of truck companies on an express highway, provisions were made to effect maintenance exchange of vehicles carrying priority cargo.<sup>3</sup> Every attempt was made to keep priority materials, particularly Class III and V, moving forward. During the Central European campaign of the First US Army, the 910 Ordnance Heavy Automotive Maintenance Company reloaded 15 tons of Class V supplies, in less than six hours, onto maintenance exchange vehicles.<sup>6</sup>

#### SECTION 5

##### ECHELONS OF MAINTENANCE

41. First echelon maintenance. As long as service stations were operated wholly by military personnel no attempt was made to do the first echelon maintenance for the driver. The facilities, tools and supervisory assistance were available but the actual labor was performed by drivers.<sup>4</sup> In Ninth US Army this was emphasized by Administrative Instructions which announced the establishment of service stations.<sup>7</sup> Only after civilian labor, prisoners of war and displaced persons were utilized, was first echelon maintenance duties done for the driver. In Chanor Base Section, the driver was requested to assist in the operation by performing such minor tasks as cleaning out the glove compartment and checking for the accident report. In this manner it was hoped that the driver could be impressed with the idea that the operations of the stations were a service which, in no way relieved him of his preventive maintenance responsibilities.<sup>10</sup>

42. Second echelon maintenance. The service stations became, in reality, the company shop of the many small detachments in the army which have no organic second echelon personnel or equipment. In the Fifteenth US Army the vehicles of the small detachments were placed on a consolidated maintenance duty roster and it became the unit commanders' responsibility to make certain the vehicles were available when called for by the Headquarters Company motor officer.<sup>8</sup> A vehicle processed in a Chanor Base Section received a completed job order and check list which was returned to the unit motor officer to indicate the maintenance accomplished on the vehicle.<sup>10</sup> In the projected plan of Advance Section, Communications Zone, for the establishment of service stations on Red-Ball highways, operating personnel was to consist partly of mechanics drawn from the Quartermaster truck companies using the road. It was felt that little or no maintenance would be performed in unit shops and it would entail no hardship to place all company mechanics and equipment into consolidated operation on the Red-Ball highway.<sup>13</sup>

## Bibliography

### Chapter 6

1. Statement of Colonel A. L. Ayer, Chief of Transportation Division, Communications Zone Section, The General Board and former Chief of Motor Transport Service, Communications Zone. (Appendix No. 7)
2. Statement of Major Leslie Stewart, re: Roadside Service Stations. (Appendix No. 6)
3. Plan formulated by Ordnance Division, Advance Section, Communications Zone, to provide first and second echelon maintenance for Quarter-master truck companies operating on Red-Ball Route. (Appendix No. 10)
4. Statement of 1st Lt. Roy L. Hendricks, 3408 Ordnance Medium Automotive Maintenance Company. (Appendix No. 5)
5. Joint statement of Major S. E. Beaudreaux, Jr. and Captain Herbert E. Robinson of Ordnance Depot O-686, Belgium. (Appendix No. 11)
6. Statement of Colonel W. B. Moats, Commanding Officer, 51 Ordnance Group. (Appendix No. 1)
7. Paragraph 4 e (6), Section III, Administrative Instructions No. 4, Headquarters Ninth US Army, dated 24 February 1945. (Appendix No. 6)
8. After Action Report, Ninth US Army.
9. Statement of Captain Harvey C. Stone, Motor Officer, Headquarters Company, Fifteenth US Army. (Appendix No. 2)
10. Standing Operating Procedure for the Establishment of Super Service Station, Headquarters Channel Base Section, 12 April 1945. (Appendix No. 13)
11. After Action Report, Third US Army.
12. After Action Report, Seventh US Army.
13. Statement of Maj. Robert G. Blaylock, former Assistant Maintenance Officer, Advance Section, Communications Zone.



## CHAPTER 7

### PUBLICITY

#### SECTION 1

##### ROAD-SIGNS

43. Marking. All commands stressed the necessity for properly designating and advertising the presence of the roadside service stations. Considerable latitude was granted by some headquarters, notably Chanor Base and Advance Section, Communications Zone, which allowed units to depart from the accepted idea of military signs. As a result, eye-catching signs, such as were popularized by Burma Shave in the United States, urged the driver to make use of the service station facilities.<sup>1</sup> It is noted that the commendation of General Jacob L. Devers, Commanding General, 6 Army Group, to the 197 Ordnance Battalion, on the operation of a roadside service station made particular mention of the network of signs on the approaches to the station.

44. Publicity. In the Armies, use was made of administrative orders and instructions to convey information of the stations and their locations to the using units. In Chanor Base Section, where the drivers were mostly transients, and had no access to information about the stations, a folder was developed giving locations and the service available.<sup>3</sup>

## Bibliography

### Chapter 7

1. Examples of signs used to advertise presence of service stations. (Appendix No. 14)
2. Commendation from Lt. Gen. Jacob L. Devers, Commanding General, 6 Army Group. (Appendix No. 6)
3. Standing Operating Procedure for the Establishment of Super Service Station, Headquarters Channel Base Section, 12 April 1945. (Appendix No. 13)

## CHAPTER 8

### CONCLUSIONS AND RECOMMENDATIONS

#### SECTION 1

##### CONCLUSIONS

45. Requirement. A requirement does exist for Roadside Service Stations during operations in an active theater when lines of communications are over-extended.

46. Assignment. The number and location of roadside service stations were established on the basis of road nets in the European Theater.

47. Traffic Regulating Points. Close contact was maintained by roadside service station personnel with traffic regulating points.

48. Maintenance. First, second and limited third echelon maintenance was provided. Fourth echelon maintenance was unusual.

49. Maintenance Responsibility.

a. Unit commanders' responsibility for second echelon maintenance was not reduced.

b. The drivers' responsibility for preventive maintenance was not reduced.

50. Service. Food, shelter and Class III service was generally provided.

51. Organization. The Ordnance medium automotive maintenance company, T/O & E 9-127, except for certain deficiencies of equipment, was well suited to operate roadside service stations.

#### SECTION 2

##### RECOMMENDATIONS

52. Revision of Publications. Recommend that pertinent field manuals, army regulations and technical manuals be amended by appropriate agencies of the War Department to include the functions of roadside service stations.

53. Mission. Recommend that the operation of roadside service stations be announced as an additional potentiality of Ordnance medium automotive maintenance companies.

54. Equipment. Recommend that a list of temporary additional equipment be drawn up by appropriate agencies of the War Department, to be issued Ordnance medium automotive maintenance companies when assigned the mission of operating two or more roadside service stations.

55. Assignment. Recommend that additional Ordnance medium automotive maintenance companies be assigned to Communications Zone and armies on the basis of anticipated road-net, during operations in an active theater when lines of communications are over-extended.

56. Technique. Recommend that additional Ordnance medium automotive maintenance companies be utilized during large scale maneuvers to further develop the technique and functions of roadside service stations.

57. Services. Recommend that first, second and limited third echelon maintenance be provided by roadside service stations, as well as scheduled road patrols between stations; also that food, shelter and emergency Class III service be made available.

58. Maintenance Responsibility. Recommend that no change be made in current policies fixing the driver's and unit commander's responsibilities for preventive and second echelon maintenance.

\* \* \* \* \*

On movement across France, the 51 Ordnance Group used six medium automotive maintenance companies to operate 12 truck hospitals. These platoons were about 20 miles apart, and consisted of one platoon of a medium automotive maintenance company. Units had insufficient cooking equipment. A company is equipped to function only as a company, but is designed to function by platoons. It was necessary to obtain authorization for G I cans and other mess equipment. Units operated wrecker points between truck hospitals; one wrecker left with each platoon to use for pulling engines and shop work as well as close-in evacuation.

In between truck hospitals, i.e., every ten miles, was a wrecker point. During rainy weather, patrol was by wreckers; in good weather, by one-quarter tons. Jobs done by road patrols averaged 20 per vehicle, and included refueling and oil, minor repairs and adjustments, replacing fan belts, distribution parts, etc. Vehicles were specially marked for day and night operation with red lights with yellow bomb for night, and red board with "Ord Patrol" in yellow for day. All personnel on road patrol were required to know location of command posts and headquarters of major commands, and worked closely with traffic regulating points. Effort was made to coordinate activities with traffic regulating points because there information was available as to routes being used for troop movements. As a result, it was possible to place wreckers and patrols on roads where need was the greatest.

Suggest points be organized using civilians and prisoners of war to include exchange of complete wheels and tire repair.

Replacement trucks were kept on hand and used effectively in keeping Class V and III on road without undue delay when original vehicle was in need of maintenance. In this connection, the 910 Ordnance Heavy Automotive Maintenance Company transferred 15 tons of Class V in less than six hours in the Central European Campaign.

Drivers will not repair tires on road. Such a system of aid points is highly desirable and economical. Road patrols were required to pass any given point every 90 minutes and to clear a wreck in three hours. This was not always possible, but was nevertheless the goal.

At one time during the Bulge, 11 ammunition trucks were wrecked on one hill. All were cleared in two hours. This was near Demot O-610, west of the Meuse.

Believe 25 miles is proper interval. (50 miles per company or two companies per 100 miles.)

Forty percent of work done was second echelon. Also did third and some fourth echelon work. Fourth echelon was necessary because of lack of assemblies. Between 20 - 25 percent of work done was for Advance Section, Communications Zone and other transient trade not part of the army.

Class III resupply is definitely needed. Carried C and K rations for transients who were stranded. There was no provision for first aid on roads; hence one man trained in first aid was included on road patrols and was frequently needed to give aid in case of broken limbs, cuts, etc.

At Giessen, the 51 Ordnance Group operated relay point for replacement tanks being sent forward. Housed and fed 500 men per day. (1000 meals per day.) Service included fuel and mechanical adjustment.

Wrecker patrol should be coordinated with Provost Marshal and Transportation Corps since Ordnance and these two all perform road patrol and handle orders for troop movements. During the Bulge, had Ordnance not had this information it would not have been possible to post wreckers at critical points. During the movement of the 7 Armored Division south at the time of the Bulge, at least 60 wrecks occurred at two points. These would have interrupted movement of this division if they had not been cleared.

One wrecker patrol east of Luxembourg (five men), shut off by Germans during the Bulge, were used by Infantry for dismounted patrol and commended for their work.

Maintenance exchange vehicles, principally two and one-half ton trucks and four-five ton prime movers, should be available, and POL should be on emergency basis. Each company had 15 two and one-half ton trucks, no four-five ton prime movers. This was insufficient.

Believe T/O and T/E for roadside service stations should be established. Medium automotive maintenance company is not equipped to operate two points as they do not have mess, sanitary equipment, tools, jeeps and wreckers to operate two points. Each platoon should have four wreckers, three for road and one for shop use.

These units should be assigned to armies and Communications Zone on basis of road net and reassigned by them to Ordnance groups as needed.

Does not believe that roadside service stations can perform scheduled maintenance. By use of windshield stickers of various colors and the establishment of roadside service stations in sufficient quantities at holding points, Class I and III points, railheads, the second echelon of Quartermaster truck companies and other service units may be reduced. As a matter of practical experience, using services in this theater did not perform first and second echelon maintenance. Better than five man hours per vehicle were required to correct first and second echelon deficiencies until command decision was obtained authorizing turning back of vehicles with first and second deficiencies.

Believe 20 to 30 minutes are required to wash, lubricate, change oil and tighten up vehicle.

First US Army Ordnance determined there were nine principal causes of failure in two and one-half ton trucks. A truck rehabilitation center was set up in Verviers, Belgium. Civilian automotive advisors supervised washing and lubrication and a supply of hardware was provided to care for missing transmissions and transfer case hanger bolts.

Statement of Captain Harvey C. Stone, Motor Officer, Headquarters Company, Fifteenth US Army.

In April 1945, the command post of Fifteenth US Army moved to Bad Neuenahr, Germany. Numerous small units, such as Intelligence Teams, Information and Historical Detachments were attached to the headquarters. These detachments were authorized no organic second echelon equipment or personnel. Likewise, the acquisition of German sedans and the constant influx of visitors added to the maintenance picture. To solve these problems it was decided to establish a service station.

A civilian station was found, relatively undamaged, with pneumatic lift, grease pit, air compressor and gas pumps. A wash rack was set up about one-quarter mile from the station. Signs were posted on all access roads advertising both the station and the wash rack,

The Headquarters Company Motor Officer was placed in overall supervision of the station and maintenance of the small attached units. A consolidated maintenance duty roster was kept and vehicles were called in for maintenance service by the company motor sergeant.

Three enlisted men and eight displaced persons operated the station and wash rack. The enlisted men did emergency repairs while the displaced persons washed and lubricated vehicles, dispensed gas and oil and fixed flats.

Some difficulty was encountered initially, in the use of the displaced persons, in the difference in language and non-mechanical ability but close supervision of all activities corrected this.

Statement of Captain R. J. Ruddy, Assistant Ordnance Maintenance Officer, Headquarters, Fifteenth US Army.

1. In April, 1945, the maintenance of the vehicles of Quarter-master truck companies had reached a state where decisive action was necessary. This condition was caused by both past and present missions of the companies and a general non-maintenance attitude of the units. Vehicles, brought to Ordnance shops for third echelon repair, were found sometimes to require complete rebuild to raise the standards of maintenance within the companies, it was decided to form rehabilitation teams.

2. A team consisted of one officer and 15 enlisted men from each Ordnance heavy maintenance company, and all truck company drivers and second echelon mechanics. Hand tool sets were used, augmented where necessary, by tools drawn from the Ordnance company.

3. An assembly line was set up consisting of about ten stations. The vehicle passed along the line with a number of the procedures of a Technical Inspection (W. D. Form 461) being performed at each station by an Ordnance mechanic, company mechanic and the driver. At the end of the line the vehicle was inspected by Ordnance personnel. Any vehicle requiring higher echelon repairs was evacuated to the Ordnance company.

4. The rehabilitation program was successful in that it did effect some improvement in the vehicle maintenance but it did not achieve maximum results for two reasons:

a. Fast-moving parts, such as gaskets, wheel bearings and grease retainers were in short supply and were not on hand in the company at the time. The parts to be used must be anticipated and available to achieve the results desired within the allotted period of time.

b. The truck companies thought of the three-day period as one of rest and, as a result, all personnel were not on hand to work on the vehicles. All company mechanics, drivers and assistant drivers, and unit officers must devote whole-hearted efforts to the task at hand if the rehabilitation program is to achieve maximum efficiency.



Part IV. Maintenance

\* \* \* \* \*

Maintenance problems were complicated by lack of adequate first and second echelon maintenance throughout the army. Particular difficulty was encountered with artillery during the winter months, when pieces were not properly cleaned or lubricated. Similarly, the majority of drivers in the army were North African natives and did not understand proper maintenance of their vehicles. Owing to their temperament and lack of experience there was a high percentage of accidents in the army, particularly during the winter when the roads were in bad condition.

Statement of 1st Lt. Roy L. Hendricks, 3408 Ordnance Medium Automotive Maintenance Company, 20 Sep 1945.

1. General: As the Seventh US Army pushed inland from the beaches the forward elements became increasingly distant from their sources of supply. In one instance, 125 miles separated the rear army Ordnance depots from the forward area. There were no Ordnance installations in this void. To rectify the situation it was planned to establish service stations along all main supply routes. Initially, service station personnel were taken from Ordnance heavy automotive maintenance companies. This did not prove satisfactory as many companies suffered loss of mechanics under this plan. It was decided that the 3408 Ordnance medium automotive maintenance company would operate all service stations, the number of which varied from six to nine.

2. Composition: Each service station consisted of nine enlisted men, one of whom was a cook as the stations rationed separately. A non-commissioned officer was placed in charge of each station. No displaced person or prisoner of war labor was utilized. Company Officers made daily checks of all stations to ascertain problems, correct deficiencies and handle such administrative matters as payroll and rations. Each station had either a three-quarter ton weapons carrier or a two and one-half ton truck. These were used only for breakdowns, not for road patrols.

3. Operations: The stations did emergency repair only. There was no first echelon maintenance performed by station personnel. The facilities for doing first echelon were available, however. During the shortage of hot patches on the continent, the stations received top priority and at no time were they forced to do without. The stations were established generally on a basis of one to each main supply route in each Corps area. If an Ordnance company was available along the route then no station would be set up. The operation was usually always under tents because strategic location and not desirability of accommodations was the prime consideration. Gasoline and oil would be issued only in emergency cases. A daily report of each station's activities was submitted to group. Towards the end of the campaign, as using units grew accustomed to the service available to them, nine service stations were repairing over 500 vehicles per day. The all time high for one service station was 120 jobs. Any prolonged reduced rate of production indicated that the traffic had diminished to the extent that a change in location was needed. Constant liaison was maintained with Army G-4 Transportation to insure that the station would be moved to a more heavily travelled route. The stations were not mobile and required assistance from the company to effect a move. Parking space for 15 to 25 vehicles was a necessity. Sufficient M-5 generators were obtained from army collecting points to equip all stations. The majority of jobs processed were carburetion, ignition, adjustment and replacement of lights.

(6) Ordnance Service Stations are established for the convenience of all Ninth Army units to facilitate in the operation of washing and lubrication of Ordnance equipment. These stations are established to further Ordnance Service, but will in no way relieve commanders of their responsibilities of 1st and 2nd echelon maintenance. The drivers and assistant drivers are required to wash and lubricate their equipment. Ordnance personnel will be present to supervise operations and to perform a spot inspection of all the equipment. Power driven grease guns, lubricants, water pressure wash racks and air compressors are available.

Statement of Major Leslie Stewart, re: Roadside Service Stations:

In February 1945, Ninth US Army established service stations in the large cities west of the Rhine such as Munchen-Gladbach, Krefeld and Maastricht. They were set up in fixed installations and initially, all personnel were enlisted men. The driver was required to perform first echelon maintenance on the vehicle, but Ordnance assistance was available for supervision and second echelon. All facilities such as tools, grease guns, gas and oil, and wash racks were furnished.

After the crossing of the Rhine, the stations were established at about 50 mile intervals along the autobahns. Displaced persons were available to fix flat tires, wash and lubricate vehicles. Wreckers were placed at the stations and one-quarter ton trucks patrolled the highways. At some of the stations, Red Cross Clubmobiles furnished drivers with coffee and doughnuts.

At one time in the campaign it was possible to travel from the Elbe River in Germany to the German-Holland border and have service stations at intervals along the entire route. It was noted that the customers consisted chiefly of troops located in the army service area and vehicles of combat elements enroute to depots.

SUBJECT: Commendation.

TO : Commanding Officer, 197 Ordnance Battalion,  
THRU: Commanding General, Seventh US Army, APO 758

I want to commend the officers and men of your organization for their initiative and foresight in organizing and operating the Seventh Army Ordnance Emergency Repair Station near Donevire, France.

I am particularly impressed with the network of signs on the approaches to your station, and I am sure you gather many deserving customers in need of quick repairs.

It is by such efforts we keep our vehicles rolling in these days when we need them so badly. I take great pleasure in sending this commendation to you and your organization.

/s/ Jacob L. Devers  
/t/ JACOB L. DEVERS  
Lieutenant General, U.S. Army,  
Commanding.

Lt. Colonel K. R. Daniels, Deputy Ordnance Officer, Third US Army:

Third US Army employed roadside service stations for tire repair, ignition work and light repairs of similar nature. When hot patches were extremely scarce, they were placed in roadside service stations which were placed on the roads of France and the autobahn in Germany. The mobile road patrols were dismounted and placed in existing filling stations to do the same type of work as outlined above.

/s/ ROBERT J. RUDDY  
Capt., Ord Dept

THE GENERAL BOARD  
UNITED STATES FORCES EUROPEAN THEATER  
Office of the Ordnance Officer  
APO 408

1 October 1945

Statement of Colonel A. L. Ayar, Chief of Transportation Division,  
Communications Zone Section, The General Board; formerly Chief of Motor  
Transport Service, Communications Zone, throughout the European Campaign.

Preventive maintenance of vehicles suffered heavily along the Red Ball Highway during its 87 days of operation, which began in the latter part of August, 1944. There was a possibility that the German armies could be destroyed and the war brought to a speedy end. The gamble was deemed worth taking. Over 45 provisional truck companies were formed from newly arrived combat divisions and from an Engineer general service Regiment. A double shift of drivers was assigned to each vehicle. Men were placed as drivers with little or no training. Initially, there was no wrecker patrol along the route as all wreckers, Ordnance and unit, were working in shops coping with the abnormal maintenance load. Drivers were away from unit shops sometimes five days at a time, during which period very little maintenance was performed on a vehicle.

North of St. Lo, France, at a traffic control point, an Ordnance medium automotive maintenance company operated a shop in conjunction with a transient mess, a refuel point, and a Red Cross doughnut and coffee stand. The installation was very helpful and more of them could have been used.

Learning from mistakes of the Red Ball Route, the Black Diamond Route, supplying 6 Army Group from March to May, 1945, was inaugurated in cooperation with the Ordnance emergency repair stations of Seventh US Army. Drivers were given strip maps showing locations of the stations. Close liaison existed between the Transportation Corps and Army Ordnance. As a result it was possible to increase the daily availability of vehicles in a Quartermaster truck company from 34 to 39; maximum availability would be 48.

Roadside service stations are necessary and cooperation and close liaison with Transportation Corps is a vital link in their success.

**THE 1ST ARMY POINTS OUT 9 THINGS TO**

# WATCH ON THE RHINE

1. CHECK VALVE CLEARANCES: IN-TAKE .012, EXHAUST .016

2. ADJUST CLUTCH-PEDAL FREE TRAVEL (TO 2½")

3. KEEP FOOT OFF CLUTCH PEDAL EXCEPT TO START, SHIFT, AND STOP

4. DON'T TOW WITH JUST A ROPE OR CHAIN. USE TOW BAR TO PREVENT FRONT-END DAMAGE TO TOWED VEHICLE

5. TIGHTEN RADIATOR HOLD-DOWN BOLTS

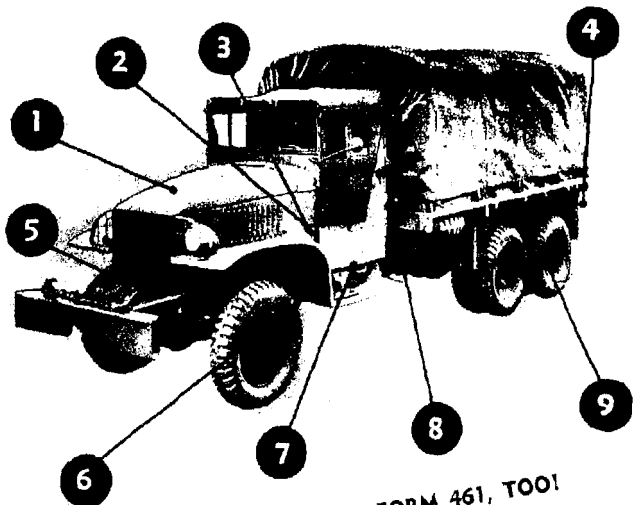
6. TIGHTEN TRANSFER CASE, TRANSMISSION & PILLOW-BLOCK MOUNTING BOLTS

7. TIGHTEN CAB HOLD-DOWN BOLTS

8. CLEAN & RE-OIL HYDROVAC AIR CLEANER

9. TIGHTEN BOLTS THAT HOLD BOGIE ASSEMBLY TO FRAME

... or anywhere else 2½-ton, 6x6 GMC's are taking a beating. Whenever overloads are authorized, wherever long hauls or tough terrain are everyday stuff, you'll do well to double-check these items—the nine "main causes of failures" reported by the 1st Army from the Western Front.



**ALL THIS—AND THE REST OF FORM 461, TOO!**

Rear Cover, "Army Motors", December 1944

Statement of Major Robert G. Blaylock, Assistant Maintenance Officer,  
Advance Section, Communications Zone, USFET Headquarters, Hochst, Germany,  
pertaining to the Initiation and Operation of Roadside Service Stations.

OPERATIONS:

1. Super-service stations were established in Advance Section, Communications Zone at the direction of the Commanding General who felt, at the time, that a great improvement was needed in first and second echelon maintenance of vehicles. The original mission was to provide maintenance for transient vehicles and vehicles of small detachments which had no organic maintenance. Stations were set up in the fall of 1944 in the vicinity of Namur, Liege, and Verdun. Military personnel were used in a supervisory capacity with civilians and/or prisoners of war doing the actual work. A time limit of one hour was placed on each vehicle--all vehicles requiring more time than this to complete repairs were referred to the nearest Ordnance shop. The stations were initially stocked with a supply of fast-moving parts. Resupply was from a "milk run" which consisted of trucks from a depot which contacted stations daily to deliver parts and receive a want list for next day's delivery. There were no road patrols or wreckers operated from the service stations as ASCZ had an elaborate system of road patrols operated by Ordnance companies in conjunction with Transportation Corps. A tire repair section made immediate exchange of tires and wheels, repairing flats during slack periods.

FIRST AND SECOND ECHELON MAINTENANCE FOR QM TRUCK COMPANIES:

1. During the operation of the Red Ball highway in Normandy, records kept by Advance Section, Communications Zone maintenance battalions indicated a high mortality rate of vehicles due to neglect and abuse. One of the explanations offered was that trucks were being used constantly and there was no time for preventive maintenance. In the spring of 1945, a plan was developed by Advance Section, Communications Zone to be put in effect in the event that a breakthrough would once more cause the establishment of express highways. A service station capable of handling 250 vehicles per hour would be centrally located along the highway. Operating personnel would be Ordnance personnel in a supervisory capacity, second echelon mechanics from the Quartermaster truck companies, civilians and prisoners of war. All maintenance activities in the truck companies would be suspended and all tools and equipment transferred to the service station including wreckers which would be used for road patrol. A period of 40 minutes would be allowed for the servicing of each truck and the driver would be sitting while his truck was serviced. A vehicle requiring third or fourth echelon maintenance would be exchanged on the spot and evacuated to a nearby Ordnance company.

The attached is a proposed Roadside Service Station to provide maintenance and service for Quartermaster truck companies operating along an express highway similar to the Red-Ball route. It was drawn up by personnel of the Ordnance Section, Advance Section, Communications Zone, and was to be used in the event the Central European Campaign necessitated the establishment of an express highway.



First and Second Echelon Maintenance for Quartermaster Truck Company.

1. The following requirements of tools, spare parts, class III supplies, and personnel would be necessary to service 48 convoyed vehicles first and second echelon in a period of 40 minutes. (40 minutes will allow time to replace or feed drivers)

2. Necessary personnel to operate one double maintenance line 12 hours. (servicing 48 vehicles in 40 minutes)

10 Officers

- 1 Officer in Charge
- 8 Motor Officers (1 per each 6 vehicles)
- 1 Supply Officer (When operating under Group the Supply Officer will operate as Group Supply Officer and Supply All Maintenance lines)

20 NCO's

- 1 NCO in charge (585)
- 1 Assistant NCO in charge (585)
- 16 NCO (T/Sgt)(813), 1 per each 3 vehicles
- 2 NCO (S/Sgt)(821), 1 NCO General Clerk (055)

96 Mechanics

- 48 Mechanics (014)(T/4) 1 per vehicle
- 48 Mechanics (014)(T/5) 1 per vehicle

48 Basics

- 48 experienced in lubrication (1 per vehicle)

144 Basics, POW's or French Laborers

144 to clean vehicle, check tires, change tires, batteries, etc.

318 Total personnel necessary to operate one double maintenance line 12 hours.

3. Necessary supplies to operate one double maintenance line. (Stock will be replaced as needed)

- 48 - Second Echelon Tool Sets No. 1 (1 ea vehicle space)
- 1,920 - Gallons of Gasoline (384 cans)(40 Gal. per truck)
- 3,600 - Gallons of Diesel Oil
- 48 - 10 Gallon cans of Lubricating Oil
- 48 - 5 Gallon cans of water
- 16 - Cans 90 gear Lubricant
- 6 - 6-volt 17 plate Batteries
- 24 - 14mm Spark Plugs
- 24 - 18mm Spark Plugs
- 24 - 10mm Spark Plugs
- 12 - Windshield Wipers (blades)
- 20 - 750 x 20 Tires, Tubes and Wheels
- 10 - 900 x 20 Tires, Tubes and Wheels
- 10 - 600 x 16 Tires, Tubes and Wheels
- 6 - 1200 x 20 Tires, Tubes, and Wheels
- 15 - GMC Fan Belts
- 15 - Dodge Fan Belts
- 15 - Rotors (Assorted)
- 15 - Sets, Distributor Points (assorted)
- 5 - Gallons Brake Fluid
- 12 - ft, Corner tubing

- 24 - Oil Filter Gaskets and Filter Elements
- 12 - Fuel Pumps
- 3 - Dozen Rolls Friction Tape
- 3 - Dozen Assorted Light Bulbs
- 6 - Dozen Fuses
- 1 - Roll Ignition Wire
- 6 - Gas Tank Covers
- 6 - Radiator Caps

Necessary transportation for one double maintenance line:


- 4 - GMC 6x6 trucks for transporting gas, oil and water.
- 2 - 3/4 Ton W/C for rations, trouble shooting, etc.
- 2 - 1/4 Ton trucks for administration and supply.

4. It is believed that it would be necessary to set up five double maintenance lines to properly service Red-Ball at its present strength as set forth in paragraphs 2 and 3. It is imperative that the maintenance set up be able to take care of the convoy at peak load. Necessary tools and trained personnel are available at present in the Quartermaster truck companies and could be pooled as the requirement for them in the company area would be removed along with the maintenance location. Making use of the five double maintenance lines, each servicing approximately 50 vehicles per hour, would make it possible to service approximately 250 trucks per hour, 24 hours per day.

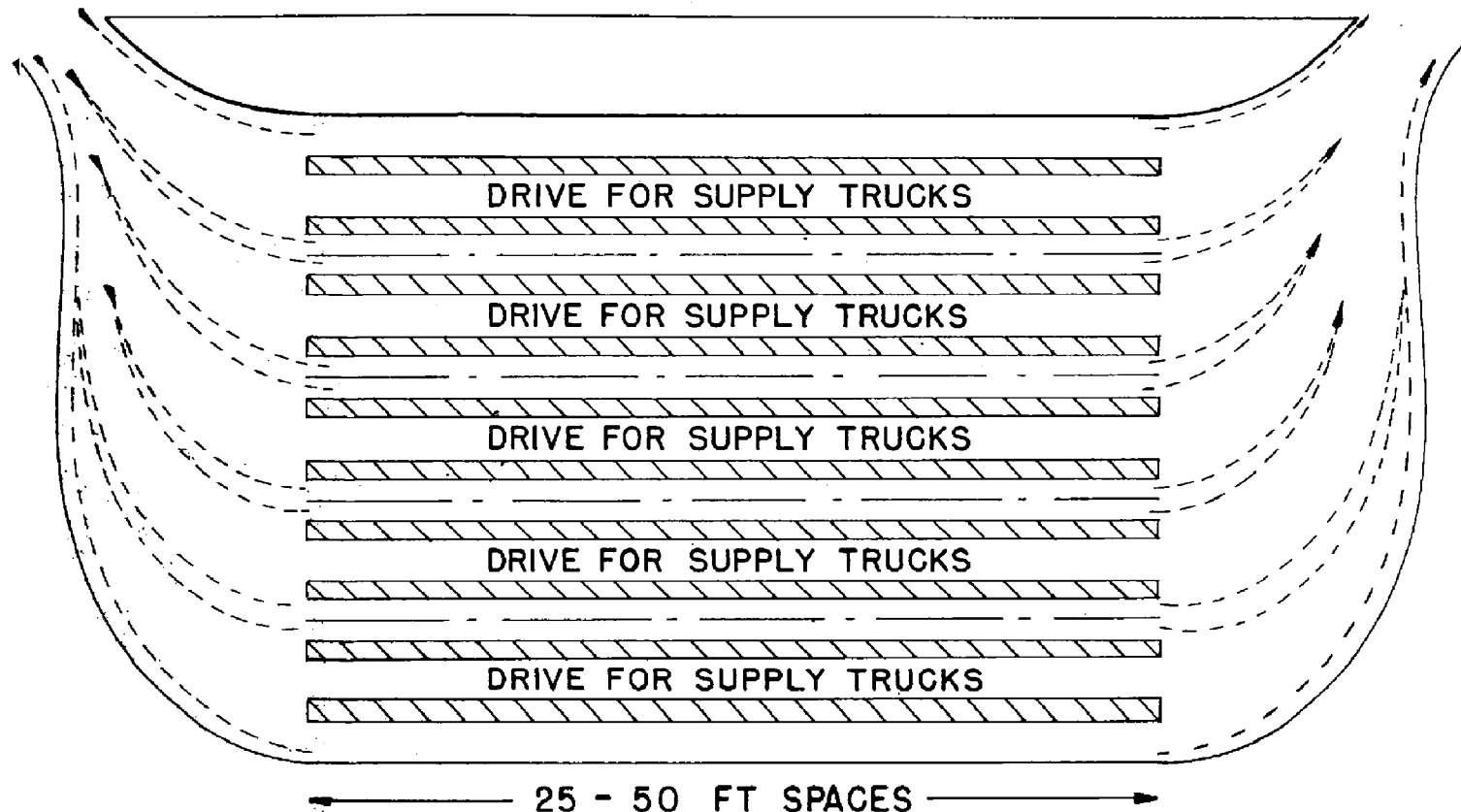
5. A plan for the maintenance set-up is shown. It is to be noted that:

a. The maintenance line as set forth in paragraphs 2 and 3 is divided into two parts and is planned for 24 vehicles as in a great number of cases a convoy consists of not more than 20 to 25 vehicles it would in that case expedite the operation of the line to have it shortened.

b. Ordnance will locate a fourth echelon maintenance shop nearby to repair or replace vehicles requiring such service.

----	DRIVE FOR CONVOY VEHICLES, 15 FT WIDE
-----	DRIVE FOR SUPPLY TRUCKS, 15 FT WIDE
	WORK SPACE AND SUPPLY, 10 FT WIDE

# HIGHWAY



THE GENERAL BOARD  
UNITED STATES FORCES, EUROPEAN THEATER  
Office of the Ordnance Officer  
APO 408

17 September 1945

Joint statements of Major S. E. Beaudreaux, Jr. and Captain Herbert E. Robinson, Adjutant, Commanding Officer and Adjutant, respectively, of Detachment 686, pertaining to Organization and Operation of Chanor Base Roadside Service Stations.

OPERATIONS:

1. When the need for roadside service stations became apparent it was decided to utilize as much civilian personnel as possible with army enlisted personnel in a supervisory capacity. A contract was negotiated with a Belgian automobile dealer whereby he hired civilian labor, provided the garages where necessary and furnished equipment as available which was in turn augmented by the Ordnance company. A non-commissioned officer was in charge of each garage and with three enlisted men directed round-the-clock operation. A company officer visited each station weekly. An initial load of fast-moving spare parts was given each station. Resupply was on an exchange basis at Detachment 686 with top priority. During the hot patch shortage on the continent, service stations received top priority on supply and were never forced to do without. It is interesting to note that the same situation existed in Seventh US Army. Wrecker service was not available. Two of the stations (Antwerp and Brussels) reached quite an advanced stage of operations in that they were replacing major assemblies (engines, transmissions and transfer cases) and became, in reality, light maintenance detachments. All stations were prepared to make exchange on both wheels and tires; the flats were repaired during slack periods of the day. A daily report of production was submitted by each station to the company. The company consolidated all figures and submitted a weekly report to Chanor Base Section Headquarters. There were no production figures available but a station was considered capable of 90 jobs a day.

As the tide of combat moved out of the liberated countries into Germany, Chanor Base Section, Communications Zone, assumed control of the areas in which the Advance Section stations were located. The opening of the port of Antwerp and the designation of Brussels as a leave center increased the flow of traffic through Belgium. The service station operation was amplified to accommodate the increase.

REMARKS:

1. The biggest drawback in the operation of service stations and the main factor in their closing was their becoming Class III supply points. Initially only enough gasoline and oil to reach the next P.O.L. dump was issued. However, the situation got out of hand and a survey at Liege, Belgium, showed the service station dispensing more gasoline in the course of a day than the Class III dump. Persons interviewed were firm in their belief that either the service stations issue no gasoline and oil or Quartermaster personnel be situated either in the station or nearby to fulfill the mission.

HEADQUARTERS  
MOTOR TRANSPORT BRIGADE, TC (PROV)  
ADVANCE SECTION COM Z  
APO 113, US ARMY

15 September 1945

SUBJECT: Lack of Ordnance Maintenance Service.

TO : Commanding General, Advance Section, Communications Zone,  
APO 113, US ARMY.

1. During the initial period of the extension of the Red Ball route effective at 1700 hours 10 September 1944 there was little or no Ordnance motor maintenance available and no highway patrols have yet been observed to date between MORTAGNE and CHARTRES and the SEINE River. Observations east of the SEINE were not obtained during this period.

2. The Commanding Officer of the 27 Quartermaster Group (TC), Colonel E. B. HOPKINS, reported 12 September that the 27 companies under his command have had no maintenance service since leaving the bivouac area near ALENCON on 10 September. During the change over to the extended route, the 27 Quartermaster Group (TC) was charged with the patrol of the route from CHARTRES to ST. LO on the return route. Patrols of this 27th Group, including Colonel HOPKINS, reported no Ordnance available, nor could any be located to care for urgent needs of specific vehicles.

3. An officer of these Headquarters, Major L. E. DARLINGTON, reported no Ordnance service could be located at ST. CYR diversion point where he was stationed from 0700 10 September to 2200 11 September. No patrols passed the point at ST. CYR CG-7 and N-10 where the Red Ball Route divides into First and Third Army Red Ball Supply routes. Special lookout was made for Ordnance patrols by this officer, in order to find relief for not less than 15 requests received asking for Ordnance service. These requests included service urgently needed to reneck a rear wheel bearing on a vehicle carrying Bailey Bridge equipment, without which an entire bridge could not be erected. This vehicle was 15 miles west of ST. CYR on Highway N-12. A battery of 155mm guns passed this point three times searching for Ordnance; from TRAPPES and VERSAILLES proper, eight vehicles required some service. On 10 September west of DREUX two GMC trucks were observed out of service due to tire trouble with no repair facilities after using spare tires.

4. On 14 September 1944, Lt. Colonel W. H. TAYLOR, of these Headquarters counted 81 vehicles requiring maintenance on the forward route between VIRE and DREUX. Most of these vehicles were cargo loaded.

5. Continual requests are currently being received from group, battalion and company commanders for Ordnance assistance and location of Ordnance installations. Major R. B. MAYNARD, of the Maintenance Branch, this headquarters, completed a definite search for Ordnance service throughout the area for five hours on 15 September without success, finding no Ordnance installations or road patrols. Vehicles were reported as having been laid up on the roads for periods of three to five days.

/s/ R. B. WARREN  
/t/ R. B. WARREN  
Colonel, FA  
Commanding

HEADQUARTERS CHANNEL BASE SECTION  
COM ZONE EUROPEAN THEATER OF OPERATIONS  
APO 228, US ARMY  
ORDNANCE OFFICE

12 April 1945

SUBJECT: S.O.P. for the Establishment of Super Service Station.

1. The following procedure will be used as a guide in the establishment of super service stations in Channel Base Section.

a. Personnel will consist of one (1) M.C.O., 1 EM and as many civilians as may be required. It is recommended that six or more be employed in those established by Ordnance maintenance units.

b. Civilian personnel to be used as follows:

1. WASHING - 2 Civilians

- a Remove all mud through scraping, swabbing and hosing.
- b Sweep bed, cab and clean glove compartment.

2. UNDER HOOD OPERATIONS - 1 Civilian

- a Check Battery, refill if necessary, remove corrosion from, and grease terminals.
- b Check Radiator.
- c Wipe Spark Plug porcelain and all wires entering Distributor Cap.
- d Remove Distributor Cap, clean and lubricate.
- e Check Steering Gear and lubricate.
- f Lubricate Generator and Starter Motor.

3. LUBRICATION - 2 Civilians

- a Lubricate Chassis.
- b Check transmission, transfer case and differential.
- c Change oil if necessary.
- d Spray under carriage with oil and kerosene mixture to prevent rust.

4. MISCELLANEOUS - 1 EM, 1 Civilian

- a Check tires for correct air pressure.
- b Remove nails, rock, and all foreign matter.
- c Check valve stems for correct position. Replace missing valve caps.
- d Tighten wheel lugs.
- e Check horn and lights.
- f Straighten and secure tarpaulins.
- g Remove 1st echelon tools and check against prepared Check List. Give copy of Check List to driver to be turned into motor officer so that he can requisition those missing tools. Correctly rewrap and replace.
- h Advise driver when vehicle requires higher echelon service and how to get such service.

c. EQUIPMENT NECESSARY TO OPERATE SUPER SERVICE STATION.

1. Pump, hose and accessories for washing. Contact local fire department for assistance in obtaining these items if necessary.

2. Tent, Mechanic shelter w/frame or any substitute such as canvas fly or bombed out buildings.

S.O.P. for the Establishment of Super Service Station (Cont'd.)

3. Air compressor.
4. Grease guns.
5. Tire equipment, lug wrenches, patches, tire gauges, etc.
6. Gas pump, tanker or jerricans.
7. Grease rack or pit. This will have to be improvised from any available material.

d. A mimeographed check list (Incl 1) will be placed in each vehicle at the start of the operation and will be initialed by the personnel concerned upon completion of each step of the operation. Upon completion of the operation a copy of the check list will be given the driver to be turned in to the motor officer immediately so that information can be posted to vehicle maintenance record.

e. Correct tire pressure for all sizes of military tires will be posted on a large sign near the air compressor.

f. Signs as shown in Inclosure 3 will be posted at conspicuous locations on all military thoroughfares and routes directing drivers of single units or convoys to the While-U-Wait Super Service Station.

3 Incls:

- 1 - Check list for Driver
- 2 - Instructions for Driver
- 3 - Super Service Information Folder

CHANNEL BASE SECTION  
SUPER SERVICE STATION  
DEPOT C-000

\_\_\_\_\_  
(DATE)

Check list for Driver of Services Received

<u>Operation</u>	<u>Initials</u>
Vehicle Wash	_____
Battery Checked	_____
Oil Checked	_____
Distributor Checked and Wires Cleaned	_____
Radiator Checked	_____
Wheel lugs tightened	_____
Foreign objects removed from tires	_____
Tarpaulin straightened and fastened	_____
Tire checked for missing valve caps and missing caps replaced	_____
Driver's tools checked against check list	_____
Driver's tools replaced and rewrapped correctly	_____
Paint touchup added, if needed	_____
Positions of valve stems on duals checked and driver instructed in proper method if incorrect	_____
Tires aired	_____
Vehicle lubricated	_____
Oil changed, if needed	_____
Oil sprayed on underside	_____

NOTE: This check list should be delivered to unit motor officer or unit as soon as possible after receipt. Any driver, dissatisfied with the service given in any one of the above operations is requested to notify the Depot Commander of that fact with the reason thereof.

Inclosure No. 1.

APPENDIX NO. 13.



CHANNEL BASE SECTION  
SUPER SERVICE STATION  
DEPOT 0-000  
APO 228 U. S. ARMY

TO: Vehicle Driver.

It is requested that the following operations of the Preventive Maintenance schedule at this station be performed by you in order to expedite the servicing of your vehicle and make room for those following:

Clean out your dash compartment.

Check for Accident Report. We have them  
if yours is missing.

Clean out your vehicle.

Remove all rocks, nails, glass or foreign  
objects from your tires.

Thank you, and we will do the rest.

Inclosure No. 2.

APPENDIX NO. 13.

*A stop at this sign*



WILL HELP YOU  
*"Keep 'em Rolling"*

The attached are samples of signs which were used by different commands in the European Theater of Operations to advertise the presence and location of the service stations.



Example of signs used to advertise Fifteenth Army Headquarters Service Station and Wash Rack.

LEAVE IS OVER WORK BEGINS

LET'S TAKE THE NEXT ONE

IN BERLIN

GOOD LUCK CHUM

EMERGENCY REPAIR

ORD DEPOT O-686

LEAVE 'EM HERE

HAVE YOUR FUN

WHEN YOU COME BACK

THE WORK WILL BE DONE

ORD DEPOT O-686

OUR SERVICE HERE

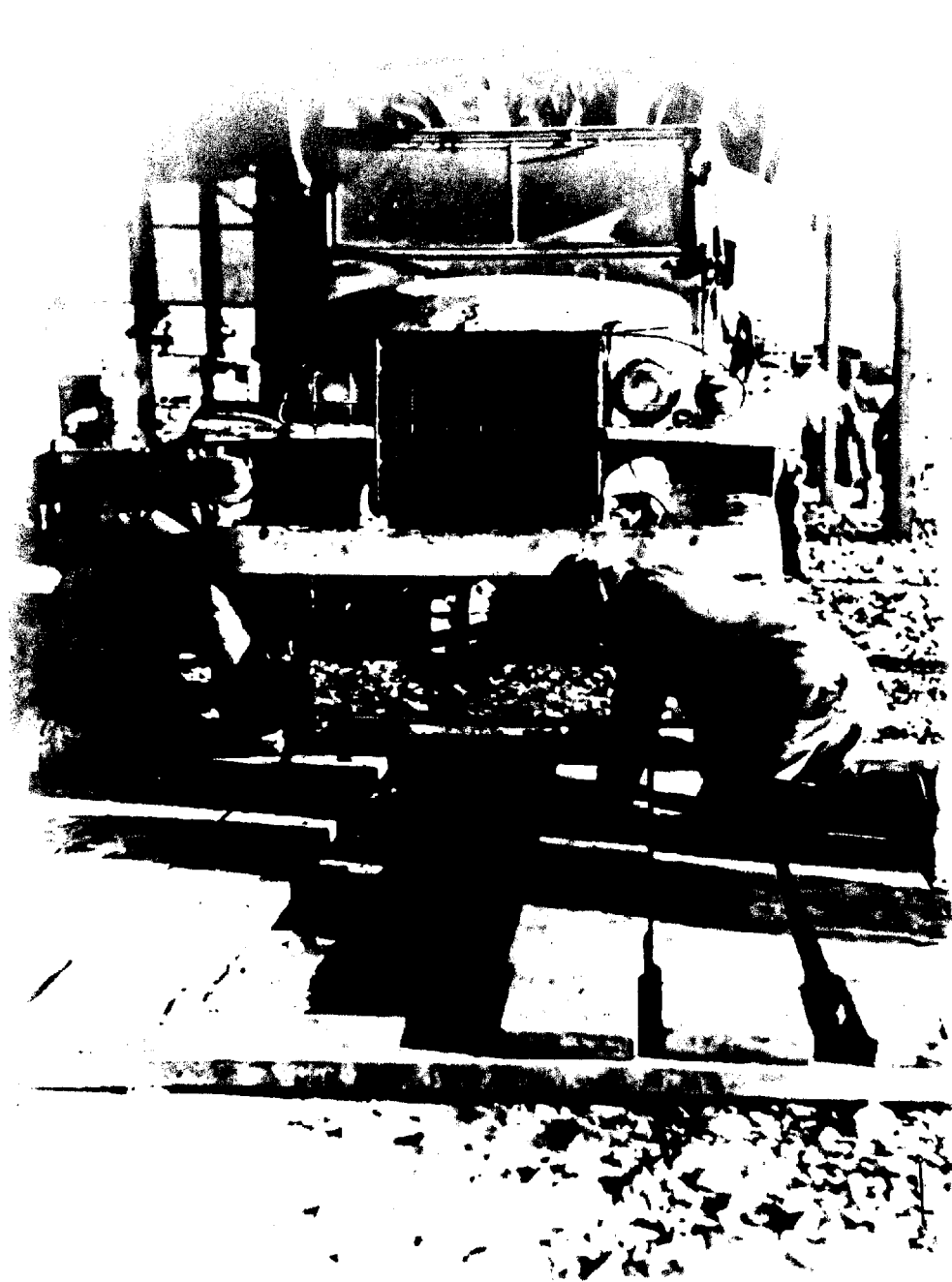
WILL RING THE BELL

JUST LEAVE YOUR TRUCK

AND RUN LIKE HELL

ORD DEPOT O-686

The attached photographs are of Service Station installations and operations in the European Theater of Operations

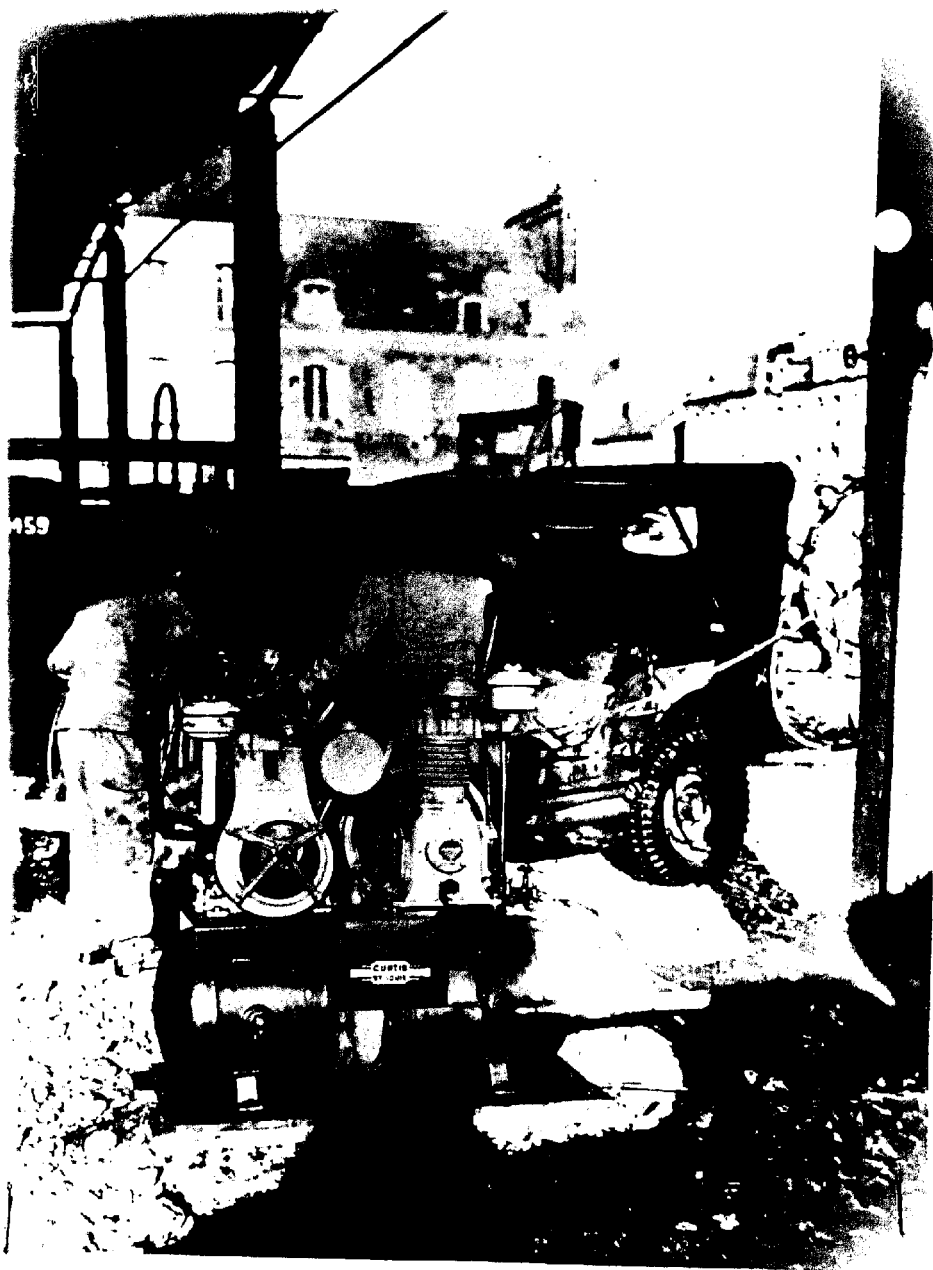


Wheel alignment is checked at a "Super Service Station"  
in France, by Ordnance inspectors. Depot O-671, Cherbourg, France

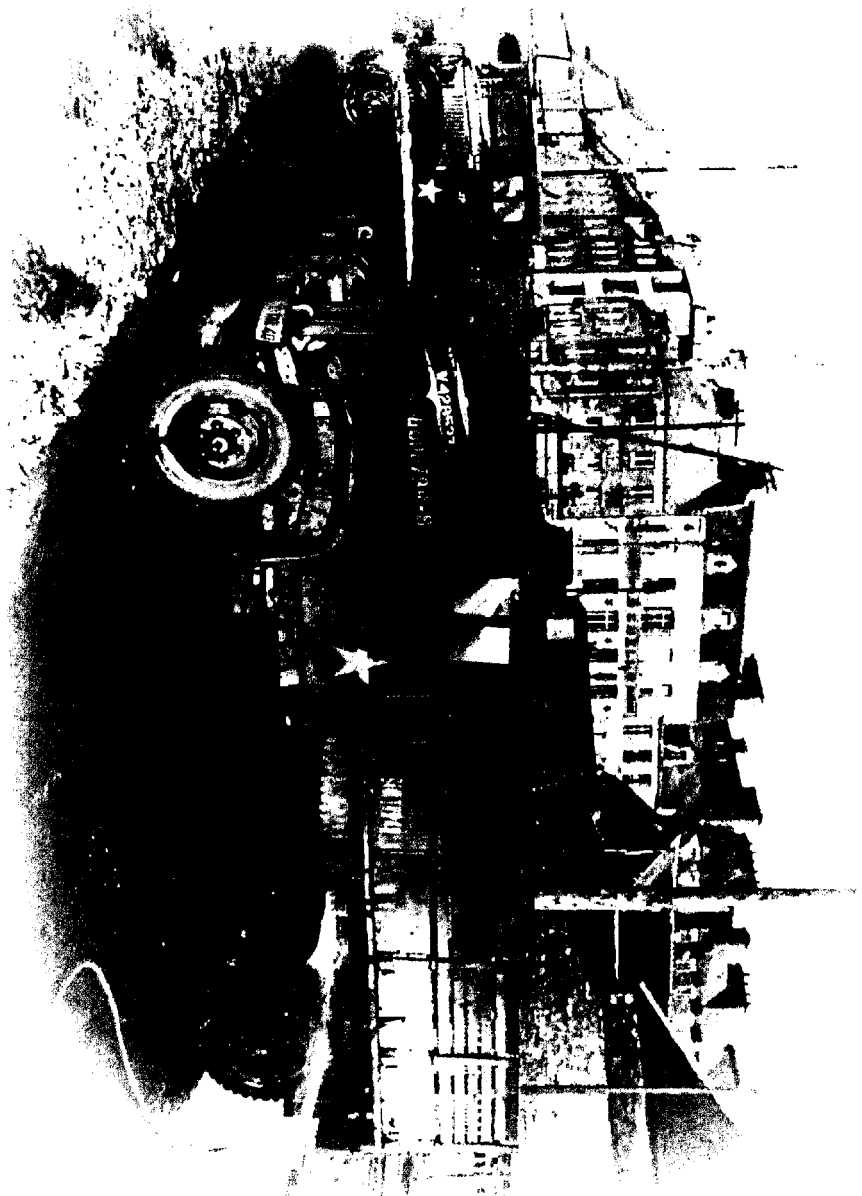


After vehicles have been washed at this "Super Service Station", in France, they are checked for brake adjustment here; other routine checks are made along this line. This station services 1000 vehicles a week. Depot O-671, Cherbourg, France.

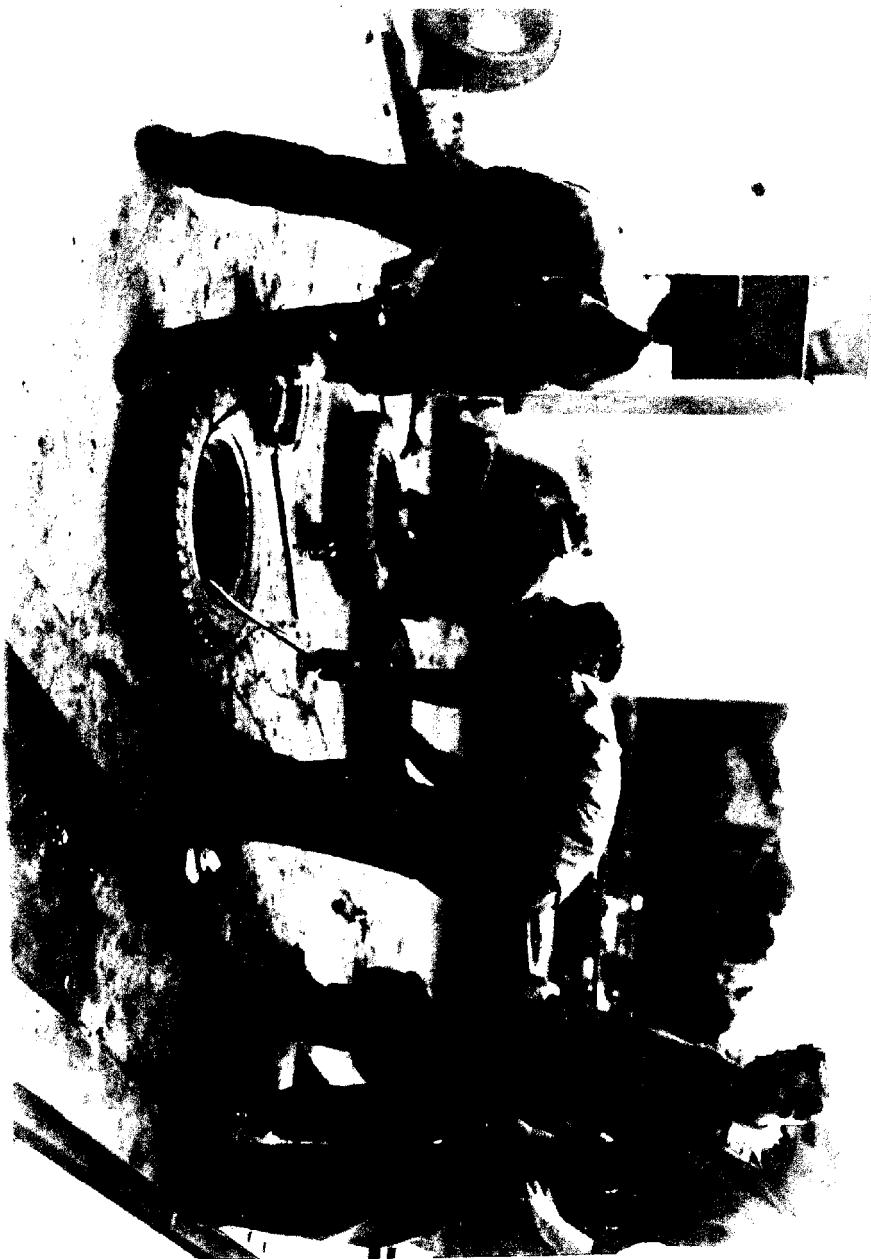




Ordnance men at a "Super Service Station" in France, dry motor of a Jeep which has been washed. Depot O-671, Cherbourg, France.



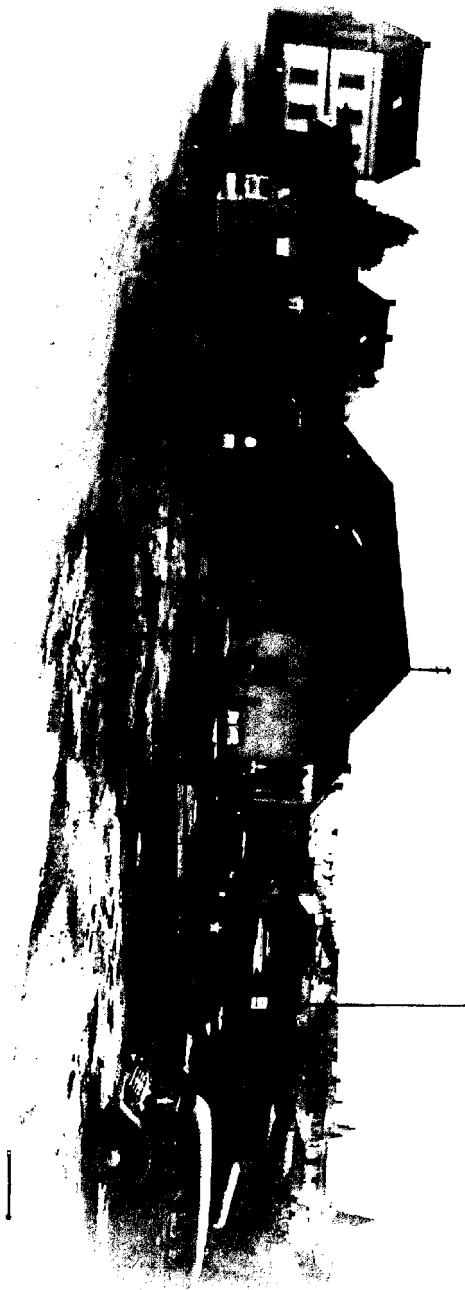
Vehicles being washed at a "Super Service Station", somewhere in France. Depot O-671, Cherbourg, France.



Tire Repair by Displaced Persons, Fifteenth Army Headquarters  
Service Station, Bad Nauhenahr, Germany.



Displaced Person Lubricating Vehicle, Fifteenth Army Headquarters  
Service Station, Bad Neuenahr, Germany.



Fifteenth Army Headquarters Service Station,  
Bad Neuenahr, Germany



Displaced Person Checking Tire, Fifteenth Army Headquarters  
Service Station, Bad Neuenahr, Germany.